UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/593,118	06/13/2000	James Howard Drew	99-836	5555

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EXAMINER
ROBINSON BOYCE, AKIBA K

ART UNIT	PAPER NUMBER
3639	

DATE MAILED: 01/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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	Application No.	Applicant(s)
Office Action Summary	09/593,118	DREW ET AL.
	Examiner	Art Unit
	Akiba K. Robinson-Boyce	3639

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>31 October 2005</u>.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-71</u> is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-71</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a) ☐ All b) ☐ Some * c) ☐ None of:

　　　1. ☐ Certified copies of the priority documents have been received.

　　　2. ☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
　　Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
　　Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1.   Due to correspondence filed 10/31/05, the following is a final office action.

Claims 1, 28, 30, 61, and 63 are amended. Claim 71 has been added. Claims 1-71 are

pending in this application and have been examined on the merits. The previous office

action has been maintained with exception to newly added claim 71.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1-4, 13,16-19, 28, 31-34, 43, 46-49, 58, 62-64, and 66-69 are rejected

under 35 U.S.C. 103(a) as being unpatentable over Flockhart et al (US 6,064,731), and

further in view of the Bank Marketing International article entitled "Are your customers

profitable?"

As per claims 1, 16, 31, 46, Flockhart et al discloses:

Generating, by a processing system, a hazard function model based on attributes

relating to a plurality of current customer accounts, /a calculating module/means for

calculating, (col. 3, lines 5-11, "at risk" customer function invoked by account number,

where the "at risk" customer function represents the hazard function model and the

customer account number represents the attribute);

Generating, by the processing system, a hazard function for an existing

customer, to determine probability of churn based on the hazard function model and

account data associated with customer and corresponding to the attributes/a generating

module/means for generating, (Col. 3, lines 32-38, comparing the customer account

number to the "at risk" database to determine if the customer is an "at risk" customer,

also col. 1, lines 12-32 shows that the determination of an "at risk" customer is for

existing customers);

determining a focus for retention-based interactions with the customer based on

at least one of the hazard function and gain in lifetime value/means for determining,

(col. 3, lines 38-52, shows that if there is an "at risk" customer, special treatment is

implemented, also, col. 1, lines 24-28 shows that business generally implements

customer service focus on agent training in an attempt to maintain high standards of

service).

Flockhart et al does not specifically disclose calculating a gain in lifetime value

for the customer based on a change in the hazard function resulting from a retention

effort, but does disclose the identification of "at risk" customers in col. 3, lines 32-38.

However, Bank Marketing discloses calculating a gain in lifetime value for the

customer based on a change in the hazard function resulting from a retention effort /a

calculating module/means for calculating, (Page 4, paragraphs 4-6, changing to a focus

based on retention in order to look at estimated lifetime value (calculation of), where it is

shown that the frequency of customer defection and likelihood of switching (hazard

function) is determined prior to calculating the lifetime value). Bank Marketing discloses

this limitation in an analogous art for the purpose of showing that the frequency of customer defection and likelihood of switching (which represents the hazard function) plays a critical role in calculating the lifetime value of a customer.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to calculate a gain in lifetime value for the customer based on a change in the hazard function resulting from a retention effort with the motivation of determining `the customers likelihood of switching during the time the customer is committed to the business.

As per claims 2, 17, 32, 47, Flockhart et al does not specifically disclose calculating a lifetime value /calculates a lifetime value, but does disclose the identification of "at risk" customers in col. 3, lines 32-38.

However, Bank Marketing discloses:

Calculating a lifetime value based on original contract terms and revenue associated with the customer/calculates a lifetime value, (Page 4, paragraphs 4-8, changing to a focus based on retention in order to look at estimated lifetime value (calculation of), where it is shown that the frequency of customer defection and likelihood of switching (hazard function) is determined prior to calculating the lifetime value, also shows the incorporation of revenue streams and cost models, in addition, Bank Marketing discloses calculating the lifetime value for a bank, and customers of banks are under some form of a contract). Bank Marketing discloses this limitation in an analogous art for the purpose of enabling the business to better understand revenue streams during the time a customer is with the bank.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to calculate a lifetime value based on original contract terms and revenue associated with the customer with the motivation of determining how revenue affects the customer's retention while he is committed to the business.

As per claims 3, 18, 33 and 48, Flockhart et al fails to disclose analyzing the shape of the hazard function generated for the customer, but does disclose an "at risk" customer function in col. 3, lines 5-11.

However, the Bank Marketing International article discloses:

Analyzing...the hazard function generated for the customer; and specifying a set of marketing techniques based on...the hazard function, (Page 4, paragraph 8, lines 1-5, shows that factors such as propensity to defect and altered cost models associated with the business are evaluated, and a rank order is assigned to customer base based on the lifetime value (marketing technique), which is based on the hazard function as shown above). Bank Marketing discloses this limitation in an analogous art for the purpose of showing that the bank implements the technique of assigning a rank order to customers for marketing purposes.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to analyze the hazard function generated for the customer, and specify a set of marketing techniques based on the hazard function with the motivation of implementing a marketing technique that suits the customer's situation.

Bank Marketing does not specifically disclose "the shape of the hazard function", however, this feature is inherent with Bank Marketing since here, altered models are used to determine the likelihood of a customer switching.

As per claims 4, 19, 34 and 49, Flockhart et al discloses:

Specifying a set of incentives to offer the customer based on the gain in lifetime value, (Col. 3, lines 40-48, "at risk" customers given high priority).

As per claims 13, 28, 43 and 58, Flockhart et al fails to disclose determining that value of the set of incentives offered to the customer does not exceed the gain in lifetime value, but does disclose that a call is routed to a supervisor for special handling if a threshold is exceeded in Col. 4, lines 1-5.

However, the Bank Marketing International article discloses:

Determining that value of the set of incentives offered to the customer does not exceed the gain in lifetime value, (page 5, paragraph 11, lines 5-8, represented by offering a lower price, or dropping a charge by knowing the lifetime value and still making a good return). Bank Marketing discloses this limitation in an analogous art for the purpose of showing that incentives such as offering a lower price can be included without affecting the customer's loyalty to the business.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to determine that value of the set of incentives offered to the customer does not exceed the gain in lifetime value with the motivation of matching the value of incentives with the lifetime value.

As per claim 62, Flockhart et al discloses:

Implementing the program based on the determined focus, (col. 3, lines 38-52,

shows that if there is an "at risk" customer, special treatment is implemented, also, col.

1, lines 24-28 shows that business generally implements customer service focus on

agent training in an attempt to maintain high standards of service).

As per claim 63, Flockhart et al discloses:

Generating, by a processing system and for each of a plurality of customers, a

hazard function to determine a probability of churn for each customer, the hazard

function based on attributes relating to customer account information, (Col. 3, lines 32-

38, comparing the customer account number to the "at risk" database to determine if the

customer is an "at risk" customer, also col. 1, lines 12-32 shows that the determination

of an "at risk" customer is for existing customers);

Identifying a temporal-based retention effort based on the hazard function for

each of the plurality of customers, (col. 3, lines 38-52, shows that if there is an "at risk"

customer, some kind of special treatment is implemented, also, col. 1, lines 24-28

shows that business generally implements customer service focus on agent training in

an attempt to maintain high standards of service);

Determining a focus for customer interaction based on the expected gain in

value, (col. 3, line 63-Col. 4, line 5, shows that if a threshold is exceeded, the call is

routed to a supervisor)

Flockhart et al fails to disclose calculating, for each of the plurality of customers,

an expected gain in value from the identified retention effort, but does disclose the

identification of "at risk" customers in col. 3,lines 32-38.

However, Bank Marketing discloses for each of the plurality of customers, an expected gain in value from the identified retention effort, (Page 4, paragraphs 4-6, changing to a focus based on retention in order to look at estimated lifetime value (calculation of), where it is shown that the frequency of customer defection and likelihood of switching (hazard function) is determined prior to calculating the lifetime value). Bank Marketing discloses this limitation in an analogous art for the purpose of showing that the frequency of customer defection and likelihood of switching (which represents the hazard function) plays a critical role in calculating the lifetime value of a customer.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to calculate for each of the plurality of customers, an expected gain in value from the identified retention effort with the motivation of determining `the customers likelihood of switching during the time the customer is committed to the business.

As per claim 64, Flockhart et al discloses:

Generating a hazard function, based on a reference hazard function model, for each of the plurality of customers, (Col. 3, lines 32-38, comparing the customer account number to the "at risk" database to determine if the customer is an "at risk" customer, where the reference is coming from the values in the database);

As per claim 65, Flockhart et al discloses:

Wherein the temporal-based retention effort comprises retention actions directed to each customer during a second time period occurring after the first time period, (col. 3, line 53-col. 4, line 5, first routing the call to a specialist, then to a supervisor).

As per claims 66-69, Flockhart fails to disclose wherein calculating a gain in lifetime value based on a change in the hazard function resulting from a retention effort comprises calculating expected revenue multiplied by an increase in remaining lifetime resulting from the retention effort, but does disclose a retention effort by identifying "at risk" customers and then implementing special treatment as disclosed in col. 3, lines 30-52.

However, calculating a gain in lifetime value based on a change in the hazard function resulting from a retention effort comprises calculating expected revenue multiplied by an increase in remaining lifetime resulting from the retention effort is obvious with Bank Marketing./ Bank marketing does not specifically state that the expected revenue is multiplied by an increase in the remaining lifetime, however, this article does lead to the same result. Bank Marketing describes implementing activity based costing into the equation for determining the customer value on page 3, paragraphs 9-12. On page 3, paragraph 17-Page 4, paragraph 4, Bank Marketing discloses the identification of patterns as activity based costing is altered, which ultimately helps determine profitable segments for the customer base, and eventually the lifetime value for that customer. In this case, utilizing the profitable segments in the equation for calculating the lifetime value represents the gain in lifetime value.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to calculate a gain in lifetime value based on a change in the hazard function resulting from a retention effort by calculating expected revenue multiplied by an increase in remaining lifetime resulting from the retention effort with the motivation of ultimately determining the gain in lifetime value.

As per claims 66-69, Flockhart fails to disclose the following, but does disclose the identification of "at risk" customers in col. 3,lines 32-38.

However Bank Marketing discloses:

wherein calculating a gain in lifetime value based on a change in the hazard function resulting from a retention effort comprises calculating expected revenue multiplied by an increase in remaining lifetime resulting from the retention effort, (Page 3, paragraph 17, activity levels is shown to alter, therefore meaning that revenue alters as well since its shown that the amount of profit customers bring in by segment by being involve in activity, is determined to assess potential profitability on Page 2 paragraph 16 and get an idea of total relationship revenue. Also, Page 5, paragraph 11-Page 6, Paragraph 2, shows retention efforts such as offering lower price, etc. can be implemented by knowing the lifetime value. Bank Marketing does not specifically show multiplication, but does shows that customer profitability forms the foundation for marketing to design and effectively supply new service and product offerings, therefore, once these offerings are made, and the customer becomes active, then the lifetime value is determined to increase because of the retention offerings).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to calculate a gain in lifetime value based on a change in the hazard function resulting from a retention effort with the motivation of determining if that particular retention effort was worthwhile.

4.   Claims 5-12, 14-15, 20-27, 29-30, 35-42, 44-45, 50-57, 59-61, 70, and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Flockhart et al (US 6,064,731), and further in view of the Bank Marketing International article entitled "Are your customers profitable?", and further in view of Sanders (6,411,936).

As per claims 5, 20, 35 and 50, 7, 9, 22, 24, 37, 39, 52, 54, 56, Flockhart et al fails to disclose determining, based on the shape of the hazard function, but does disclose an "at risk" customer function in col. 3, lines 5-11.

However, this feature is inherent with Bank Marketing since here, altered models are used to determine the likelihood of a customer switching.

Both, Flockhart et al and the Bank Marketing International article fail to disclose effect on churn of contract expiration, but Flockhart et al does disclose churn by identifying "at risk " customers in Col. 3, lines 5-8.

However Sanders discloses:

Determining ...there is no effect on churn of contract expiration, (Col. 11, line 44- Col. 12, line 10, determining lead generation by using contract value). Sanders discloses this limitation in an analogous art for the purpose of showing the effect of having the contract value goes over a certain limit.

It would have been obvious to one of ordinary skill in the art at the time of the

applicant's invention to use the contract terms and revenue to calculate the lifetime

value with the motivation of determining which customers are bound to an agreement

for specified periods of time and using this information to truly calculate how long a

customer will be a customer and how much revenue that customer can pull in for that

determined time.

As per claims 6, 21, 36, 51, the Flockhart et al fails to disclose taking no further

steps to deter churn, but does disclose taking the steps to deter churn in Col. 3, lines

53-63.

However, Bank Marketing International article discloses:

Taking no further steps to deter churn, Page 4, paragraph 4, line 2, finding

alternative banking arrangements). Bank Marketing discloses this limitation in an

analogous art for the purpose of showing that the customer can be routed to another

bank or business.

It would have been obvious to one of ordinary skill in the art at the time of the

applicant's invention to take no further steps to deter churn with the motivation of

avoiding the handling of customers who have a great possibility of leaving the business.

As per claims 14, 15, 29, 30, 44, 45, 59, 60, both Flockhart et al and the Bank

Marketing International article fails to disclose clustering the hazard function for the

customer and hazard functions for a plurality of other existing customers so that the

hazard functions are grouped together according to shape, each group representative of

a customer set/determining, based on the overall shape of the clustered hazard

functions, a focus for retention-based interactions for each customer set, but Flockhart et al does disclose clustering of all callers into one telephone network, and Bank Marketing disclose that customers can be grouped/segmented on Page 3, paragraph 15, lines 1-2.

However Sanders discloses:

Clustering the hazard function for the customer and hazard functions for a plurality of other existing customers so that the hazard functions are grouped together according to shape, each group representative of a customer set/determining, based on the overall shape of the clustered hazard functions, a focus for retention-based interactions for each customer set, (Col. 17, lines 48-52, represented by clusters of elemental information). Sanders discloses this limitation in an analogous art for the purpose of showing that data used for determining a lead can be clustered together.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to cluster all of the hazard functions for each of the plurality of new customers with the motivation of determining the average solution for keeping a customer.

As per claims 8, 10, 11, 12, 23, 38, 25, 26, 27, 40, 41, 42, 53, 55, 57, both Flockhart et al and Bank Marketing International fail to disclose having a moderate pre-expiration effort where new contracts or continued contracts are the goal/ concentrating effort on pre-expiration of contract where a contract renewal may not be required/having high intensity pre-expiration effort with continued competitive offers to maintain customer/determining, based on the shape of the hazard function, that there is a large

increase in probability of churn at expiration with high and increasing post-expiration

probability of churn, but Flockhart et al does disclose determining the possibility of

churn by determining "at risk" customers in col. 3, lines 5-8.

However Sanders discloses:

Having a moderate pre-expiration effort where new contracts or continued

contracts are the goal/concentrating effort on pre-expiration of contract where a contract

renewal may not be required/having high intensity pre-expiration effort with continued

competitive offers to maintain customer/determining, based on the shape of the hazard

function, that there is a large increase in probability of churn at expiration with high and

increasing post-expiration probability of churn, (Col. 11, line 66-Col. 12, line 6,

represented by yielding to a group of low profit contracts that are listed as a separate

category). Sanders discloses this limitation in analogous art for the purpose of

separating different type of contracts to determine leads.

It would have been obvious to one of ordinary skill in the art at the time of the

applicant's invention to produce new or continued contracts with the motivation of

keeping dedicated customers.

As per claim 61, Flockhart et al discloses:

Generating, by a multilayer feed-forward neural network, a hazard function for an

existing customer, to determine probability of churn based on account data associated

with customer and corresponding to a set attributes, (Col. 3, lines 32-38, comparing the

customer account number to the "at risk" database to determine if the customer is an "at

risk" customer, also col. 1, lines 12-32 shows that the determination of an "at risk"

customer is for existing customers);

determining a focus for a retention-based program based on at least one of the

hazard function and the gain in lifetime value/means for determining, (col. 3, lines 38-

52, shows that if there is an "at risk" customer, special treatment is implemented, also,

col. 1, lines 24-28 shows that business generally implements customer service focus on

agent training in an attempt to maintain high standards of service).

Flockhart et al does not specifically disclose calculating a gain in lifetime value

for the customer based on a change in the hazard function resulting from a retention

effort, but does disclose the identification of "at risk" customers in col. 3,lines 32-38.

However, Bank Marketing discloses calculating a gain in lifetime value for the

customer based on a change in the hazard function resulting from a retention effort /a

calculating module/means for calculating, (Page 4, paragraphs 4-6, changing to a focus

based on retention in order to look at estimated lifetime value (calculation of), where it is

shown that the frequency of customer defection and likelihood of switching (hazard

function) is determined prior to calculating the lifetime value). Bank Marketing discloses

this limitation in an analogous art for the purpose of showing that the frequency of

customer defection and likelihood of switching (which represents the hazard function)

plays a critical role in calculating the lifetime value of a customer.

It would have been obvious to one of ordinary skill in the art at the time of the

applicant's invention to calculate a gain in lifetime value for the customer based on a

change in the hazard function resulting from a retention effort with the motivation of

determining `the customers likelihood of switching during the time the customer is committed to the business.

Both Flockhart et al and Bank Marketing fail to disclose a multiyear feed-forward neural network, but Flockhart et al does disclose a telephone network in Fig. 1.

However, Sanders discloses:

a neural network, (Col. 19, lines 33-36, this neural network includes multiyear feed-forward types). Sanders discloses this limitation in an analogous art for the purpose of showing that neural networks can be used to perform necessary processing.

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to incorporate a multiyear feed-forward neural network with the motivation of utilizing this type of intelligence to determine the possibility of churn.

As per claim 70, Flockhart et al discloses:

generate a hazard function model based on the account data associated with a plurality of current customer accounts and corresponding to the set of attributes, (col. 3, lines 5-11, "at risk" customer function invoked by account number, where the "at risk" customer function represents the hazard function model and the customer account number represents the attribute); and

Wherein generating a hazard function includes generating a hazard function for an existing customer, to determine probability of churn, based on the hazard function model and the account data associated with the customer and corresponding to a set of attributes, (Col. 3, lines 32-38, comparing the customer account number to the "at risk"

database to determine if the customer is an "at risk" customer, also col. 1, lines 12-32

shows that the determination of an "at risk" customer is for existing customers);

Both Flockhart et al and Bank Marketing fail to disclose training the neural

network, but does disclose using the telephone network to determine "at risk" customers

in Col. 3, lines 5-8.

However, Sanders discloses:

Training the neural network, (col. 17, line 62-col. 18, line 33, shows the process

of determining the direction of movement and the accuracy of projections of values to

come up with a value enhancement solution, w/ col. 19, lines 34-37, shows that the

process is carried out by neural network, thus this network must be trained in order to

carry out the process). Sanders discloses this limitation in an analogous art for the

purpose of showing that neural networks can be used to perform necessary processing.

It would have been obvious to one of ordinary skill in the art at the time of the

applicant's invention to incorporate a neural network with the motivation of utilizing this

type of intelligence to determine the possibility of churn.

As per claim 71, both Flockhart et al and Bank Marketing fail to disclose wherein

training the neural network comprises loading an input layer of the neural network with

values representing the set of attributes for the plurality of current customer accounts,

but Flockhart et al does disclose using the telephone network to determine "at risk"

customers in Col. 3, lines 5-8.

However, Sanders discloses:

wherein training the neural network comprises loading an input layer of the

neural network with values representing the set of attributes for the plurality of current

customer accounts, (col. 20, lines 12-20, shows the acceptance of input pertaining to an

account and to provide a set of solutions customized for *at least one* of a specific target

customer account). Sanders discloses this limitation in an analogous art for the

purpose of enhancing overall enterprise value.

It would have been obvious to one of ordinary skill in the art at the time of the

applicant's invention to load an input layer of the neural network with values

representing the set of attributes for the plurality of current customer accounts with the

motivation of applying account specific information in order to enhance the enterprise

value.

Response to Arguments

5.   Applicant's arguments, see pages 21-22 in the remarks, filed 10/31/05, with

respect to claims 1-15 and 61-70 have been fully considered and are persuasive. The

35 U.S.C. 101 rejection of claims 1-15 and 61-70 has been withdrawn.

6.   Applicant's arguments filed 10/31/05 have been fully considered but they are not

persuasive.

As per claims 1-4, 13, 16-19, 28, 31-34, 43, 46-49, 58 and 61-64, the applicant

argues that the rejection is ambiguous and improper. The applicant argues that the

substance of the rejection based on Flockhart and Bank Marketing does not address

claim 61, and that the examiner address this claim in a separate rejection, based on

Flockhart, Bank Marketing, and Sanders. The examiner has therefore solely placed

claim 61 in the rejection based on Flockhart, Bank Marketing, and Sanders in order to clarify the rejection. In addition, the applicant argues that the Office Action does not articulate a statutory basis for the rejection of claims 65-69. The examiner has therefore included rejections for claims 65-69 accordingly.

As per claims 1-4, 13, 16-19, 28, 31-34, 43, 46-49, 58 and 61-64, the applicant argues that Flockhart does not teach or suggest the "generating a hazard function for an existing customer..." feature of claim 1. The applicant argues that even if Flockhart's "at risk" classification were to suggest a propensity of churn, Flockhart does not teach or suggest generating a hazard function based on a hazard function model and account data associated with the customer and corresponding to attributes relating to a plurality of current customer accounts. However, in col. 3, lines, 5-11, the "at risk" customer function is shown to be modeled in the flowchart of Fig. 2. This represents the "at risk" or hazard model. In addition, this model is invoked by account number for a customer account, thereby causing the customer account number to represent the attribute of the customer account. In addition, Col. 3, lines 32-38, shows the comparison of the customer account number to the "at risk" database to determine if the customer is an "at risk" customer. This represents the determination of a hazard function since the hazard model is already invoked by the account number through a validity evaluation, and since the account number is also used for comparison to an "at risk:" database to determine an "at risk" customer. In this case, the customer is "at risk" if his or her identifier matches up with identifiers with certain values in the "at risk" database. In this case, a match with the "at risk" database represents the hazard function.

In addition, the applicant argues that Flockhart does not teach or suggest "calculating a gain in lifetime value for the customer based on a change in the hazard function resulting from a retention effort", or "generating a hazard function for an existing customer...based on...[a] hazard function model and account data associated with the customer and corresponding to the attributes, " as recited in claim 1. However, it is the combination of Flockhart and Bank Marketing that discloses this limitation. First, Flockhart discloses "generating a hazard function for an existing customer...based on...[a] hazard function model and account data associated with the customer and corresponding to the attributes, " as discussed above in the preceding paragraph. The Bank Marketing article was introduced to show the "calculating a gain in lifetime value for the customer based on a change in the hazard function resulting from a retention effort" limitation. Bank Marketing specifically discloses changing to a focus based on retention in order to look at estimated lifetime value (calculation of), where it is shown that the frequency of customer defection and likelihood of switching (hazard function) is determined prior to calculating the lifetime value on Page 4, paragraphs 4-6. In addition, Bank Marketing discloses that through analysis, a bank can predict the length of time a customer is likely to stay with it, or the lifetime in the equation. In this case, the longer the length of time, the more the lifetime has gained, thereby determining a gain in lifetime value for the customer. In addition, the same passage of Bank Marketing discloses the assignment of a rank order to its customer base, based on the Lifetime Vale. This rank order would represent and show a gain in lifetime value if one obtained the ranked value from lowest ranked, to highest ranked.

The applicant further argues that there is no motivation to combine Flockhart and Bank Marketing. However, the combination of these references is valid. First, Flockhart specifically discloses the determination of "at risk" customers, and Bank Marketing specifically discloses the determination of Lifetime value where the assignment of a rank order to its customer base, based on the Lifetime Vale in order to identify customers to who it is worth allocating resources. In this case, the lower the rank, is the lower the lifetime value. A business would cause itself more risk if it allocated resources to the customers with a lower rank. Therefore, ranking the customer base according to Lifetime Value is an indirect way of determining "at risk customers". Also, since both references disclose the analysis of customer activity through customer accounts to determine the effect that customers have on a business.

Claim 16 is rejected for at least reasons as discussed with respect to claim 1.

As per claims 31 and 46, these claims are rejected for at least reasons as discussed with respect to claim 1.

As per claim 61, for at least the same reasons as discussed above with respect to claim 1, the combination of Flockhart and Bank Marketing discloses the "calculating" step. In addition, the applicant argues that the combination of Flockhart and Bank Marketing fails to disclose "multilayer fee-forward neural network". However, the combination of Flockhart et al, Bank Marketing, and Sanders discloses a multiyear feed-forward neural network through disclosing a neural network in Col. 19, lines 33-36, which includes multiyear feed-forward types.

As per claim 63, the applicant argues that Flockhart does not disclose "identifying

a temporal-based retention effort based on the hazard function for each of the plurality

of customers" and even if the "special treatment" of Flockhart were construed as a

"termporal-based retention effort", Flockhart does not disclose that the special treatment

is identified based on a hazard function as claimed. However, in col. 1, line 64-col. 2,

line 2, Flockhart discloses that upon determining that a customer is dissatisfied with a

service, special handling of the communication to alleviate the party's dissatisfaction is

provided. In Flockhart, these customers that are dissatisfied with a service fit into the

"at risk" customers. Since, the "at risk" customers are determined through the

comparison of the customer account number to the "at risk" database in Col. 3, lines 32-

38, and the hazard model is also invoked by the account number through a validity

evaluation, then the determination of a hazard function is disclosed by Flockhart as

being represented by the match with the "at risk" database, meaning that the "at risk"

customers are based on the hazard function, and therefore special treatment is given to

those who are derived from the hazard function.

The applicant also argues that Bank Marketing does not cure Flockhart's

deficiencies of disclosing "calculating, for each of the plurality of customers, an

expected gain in value from the identified retention effort". However, as disclosed

above with respect to claim 1, the combination of Flockhart and Bank Marketing

discloses this limitation. First, Flockhart discloses "generating a hazard function for an

existing customer...based on...[a] hazard function model and account data associated

with the customer and corresponding to the attributes, " as discussed above in the

preceding paragraph. The Bank Marketing article was introduced to show the

"calculating a gain in lifetime value for the customer based on a change in the hazard

function resulting from a retention effort" limitation. Bank Marketing specifically

discloses changing to a focus based on retention in order to look at estimated lifetime

value (calculation of), where it is shown that the frequency of customer defection and

likelihood of switching (hazard function) is determined prior to calculating the lifetime

value on Page 4, paragraphs 4-6. In addition, Bank Marketing discloses that through

analysis, a bank can predict the length of time a customer is likely to stay with it, or the

lifetime in the equation. In this case, the longer the length of time, the more the lifetime

has gained, thereby determining a gain in lifetime value for the customer. In addition,

the same passage of Bank Marketing discloses the assignment of a rank order to its

customer base, based on the Lifetime Vale. This rank order would represent and show

a gain in lifetime value if one obtained the ranked value from lowest ranked, to highest

ranked.

The applicants traverse the rejection of claims 5-12, 14, 15, 20-27, 29, 30, 35-42,

44, 45, 50-57, 59-61 and 70. Since claims 5-12, 14, 15, 20-27, 29, 30, 35-42, 44, 45,

50-57, 59-61 and 70 depend directly or indirectly from claim 1, these claims are still

rejected for at least reasons similar to those of claim 1.

The applicant again argues that prior art, (particularly Sanders) fails to disclose

"calculating a gain in lifetime value...", or "generating a hazard function, and further

argues that there is no motivation to combine Flockhart, bank Marketing and Sanders.

However, these limitations are disclosed as discussed above in preceding paragraphs

with respect to claim 1. In addition, the motivation to combine these three references

lies with the fact that all three disclose the analysis of customer activity through

customer accounts to determine the effect that customers have on a business.

As per claims 61, the applicant argues that Flockhart fails to disclose the

"calculating, for the customer, a gain in lifetime value..." step, and that the motivation for

combining Flockhart, Bank Marketing and Sanders is lacking. However, as explained

above with reference to claims 1 and 16, the combination of Flockhart and Bank

Marketing discloses this limitation and also, the combination of Flockhart, Bank

Marketing, and Sanders is valid since all three reference disclose the analysis of

customer activity through customer accounts to determine the effect that customers

have on a business.

As per claim 70, this claim depends on claim 61 and is rejected for almost the

same reasons as discussed above with respect to claim 61.

Conclusion

7.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

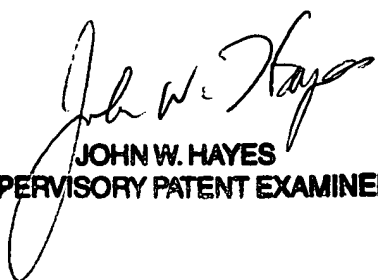than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Akiba K Robinson-Boyce whose telephone number is

571-272-6734. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John Hayes can be reached on 571-272-6708. The fax phone numbers for

the organization where this application or proceeding is assigned are 703-746-7238

[After final communications, labeled "Box AF"], 703-746-7239 [Official Communications],

and 703-746-7150 [Informal/Draft Communications, labeled "PROPOSED" or "DRAFT"].

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is 703-305-

3900.

A. R. B.
January 2, 2006

JOHN W. HAYES
SUPERVISORY PATENT EXAMINER